26926 S/139/61/000/003/006/013

The Rate of Contact Melting ... E021/E335

Fig. 2 shows the relation between $v \times 10^5$ (in cm/sec) and S/S_0 where S_0 is the area of the lower melting sample and S is the area of the higher melting sample for the Sn-Pb system (1 - 210 , 2 - 205, 3 - 200, 4 - 194 and 5 - 190 °C). Table 3 gives the values for the energy of activation (U) and the constant (a) for various systems. Both U and a increase with temperature of contact melting and decrease with increase in the number of components in the alloy.
Fig. 3 shows the effect of pressure (in g/cm^2) on $v \times 10^5$ (in cm/sec) for the Sn-Bi system. Curve 1 is for t = 150 °C and $S = 0.28$ cm^2, Curve 2 for 150 °C and $S = 0.15$ cm^2 and Curve 3 for 160 °C and $S = 0.15$ cm^2. With increasing pressure, v rapidly increases initially and then approaches a constant value. Table 4 shows the effect of ageing on the rate of contact melting. Measurements were taken at 130 °C for the system (Sn-Pb)-Bi, at 110 °C for (Sn-Pb-Cd)-Bi and 63 °C for (Sn-Pb-Cd-Bi)-In. From the investigations it is concluded

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The Rate of Contact Melting ... S/139/61/000/003/006/013
E021/E335

that the basic characteristic of the process is the energy of activation of contact melting which, for a given pair of metals, is constant, independent of the experimental conditions. The rate of contact melting changes with changes in experimental conditions because solubility depends on the size of the particles, the area of contact and pressure. There are 3 figures, 4 tables and 8 references: 6 Soviet and 2 non-Soviet. The two English-language references quoted are: Ref. 5 - R.A. Laudise - J. Amer. Chem. Soc., 81, No. 3, 1959; Ref. 8 - W.D. Kingeri - J. of Appl. Phys., 30, No. 3, 1959.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S.M. Kirova (Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: July 5, 1960

✓X

Card 3/7

LASHKEVICH, A.M.; TERENT'YEVA, A.A.; IVANOVA, L.S.; BORODULINA, M.A.; VELICHENKO, I.N.; NIKULENKO, V.S.; KONSHINA, T.I.; SHAKHOVA, T.P.; NYASHINA, A.A.; YASINSKAYA, Z.A.; AGAL'TSEVA, N.B.; SEL'MENSKAYA, Ye.G.; KRETSMER, V.L.; KONONOVICH, L.K.; FEDORAYEVA, A.M.; TKACHUK, L.Ya.; VYATKINA, G.A.; SLOUSHCH, V.S.; RACHINSKAYA, L.N.; PORTNAYA, R.Yu.; KARAKOVSKAYA, E.M.; POKROVSKAYA, M.A.; KORNEVA, A.I.; YERSHOVA, K.F., otv. red.; Prinimal uchastiye KAMANOV, M.I., red.; LAGAREVA, A.P., otv. za vypusk; NIKITINA, I.P., tekhn. red.

[Economy of Novosibirsk Province; collection of statistics] Narodnoe khoziaistvo Novosibirskoi oblasti; statisticheskii sbornik. Novosibirsk, Gosstatizdat TsSU SSSR, 1961. 331 p. (MIRA 15:6)

1. Novosibirsk. Oblastnoye statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo Upravleniya Novosibirskoy oblasti (for Yershov). 3. Zamestitel' nachal'nika Statisticheskogo Upravleniya Novosibirskoy oblasti (for Kamanov).

(Novosibirsk Province—Economic conditions)

VYATKINA, K. V.

"Obshchiye cherty material'noy i dukhovnoy kul'tury y zapadnykh mongolov, buryat i yuzhnykh altaytsev."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

VYATKINA,K.V.

Mongolian revolutionary posters. Sbor.Muz.ant. i etn. no.16:5-23'55.
(Posters, Mongolian) (MIRA 8:11)

VYATKINA, N. L.

"On the Crumpling Quality of Raw Cotton Cloth: Change in Crumpling Quality With Variation in Woof Density, Woof Size and Weave." Sub 2 Jul 47, Moscow Textile Inst

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum. No. 457, 18 Apr 55

VYATKINA, O.V.; VYATKIN, D.G.

Production of a sulfate insulating pulp from hardwood. Bum.prom. 35 no.9:19-22 S '60. (MIRA 13:9)

1. Mariyskiy tsllyulozno-bumazhnyy kombinat.
(Volzhsk--Woodpulp)

AUTHORS: Vyatkina, V. M., Ivanova, Z. A., Molchanov, A. P. SOV/108-13-10-7/13

TITLE: Phase Discriminator (Fazovyy diskriminator)

PERIODICAL: Radiotekhnika, 1958, Vol 13, Nr 10, pp 39 - 44 (USSR)

ABSTRACT: One of the principal requirements placed upon phase-discriminators is stability of balancing. A circuit is investigated which according to assertions by the author, exhibits a high stability. Formulae for the computation of a high balancing stability phase-discriminator are deduced. The discriminator characteristic and the stability of this circuit are compared with a bridge circuit with the same parameters. For this purpose the bridge circuit is investigated in a similar manner with a trapezoidal test signal. The phase discriminator is investigated experimentally, the results of this work being presented in this paper. There are 11 figures and 3 references, 2 of which are Soviet.

SUBMITTED: March 26, 1957

Card 1/1

VYATKINA, N. I. Cand. Tech. Sci.

Dissertation: "On the Crumpling Quality of Raw Cotton Cloth Change in Crumpling Quality with Variation in Weft Density, Weft Size and Weave." Moscow Textile Inst, 2 Jul 47.

SO: Vechernyaya Moskva, Jul, 1947 (Project #17836)

N V VYATKINA and A A OVCHAROVA

" Clarification of the Effect of NonDispersed Gas Absorbers on the Evacuation of Magnetrons and Breaking Them In Under Dynamic Operating Conditions" from Annotations of Works Com pleted in 1955 at the State Union Sci. Res. Inst; Min. of Radio Engineering Indl

So: B-3,080,964

VYATKINA, N. V., Engr. Cand. Tech. Sci.

Dissertation: "Study of the Process of Replacing Copper in its Sulfide with Metallic Iron by the Method of Investigating the Copper-Iron-Sulfur Ternary System." Moscow Inst of Nonferrous Metals and Gold imeni M. I. Kalinin, 17 Jun 47.

SC: Vechernyaya Moskva, Jun, 1947 (Project #17836)

RYAUZOV, A.N.; GRUZDEV, V.A.; KOSTROV, Yu.A.; SIGAL, M.B.;
GERSHMAN, B.C., red.; VYATKINA, N.V., red.

[Technology of the manufacture of synthetic fibers] Tekhnologiia proizvodstva khimicheskikh volokon. Moskva, Khimiia, 1965. 516 p. (MIRA 18:8)

V.YATKINA, N.V.

21(7) PHASE I BOOK EXPLOITATION SOV/2714

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; yadernoye goryucheye i reaktornyye metally. (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow, Atomizdat, 1959. 670 p. (Series: Its: Trudy, vol. 3. 8,000 copies printed.

Ed. (Title page): A.A. Bochvar, Academician, A.P. Vinogradov, Academician, V.S. Yemel'yanov, Corresponding Member, USSR Academy of Sciences, and A.P. Zefirov, Doctor of Technical Sciences; Ed. (Inside book): V.V. Pereversev and G.M. Pobalintseva; Tech. Ed.: E.I. Mazel'.

PURPOSE: This volume is intended for scientists, engineers, physicians, and biologists working in the production and peaceful application of atomic energy; for professors and students of schools of higher technical education where the subject is taught; and for people interested in atomic science and technology.

COVERAGE: This is volume 3 of a 6-volume set of reports on atomic energy, presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, concentration and processing of nuclear source material. The second part, edited by G.L. Zverev, includes 27 reports on metallurgy, metallography, processing technology of nuclear fuels and reactor metals, and neutron irradiation effects on metals. The titles of the individual papers in most cases correspond word for word with those in the official English language edition on the Conference proceedings. See SOV/2081 for the titles of the other volumes of the set.

Sinel'nikov, K.D., V. Ye. Ivanov, V.M. Amonenko, and V.S. Burlakov. Refining Beryllium and Other Metals by Condensation on Heated Surfaces (Report No. 2051) 525

Ivanov, Ye.S., and V.M. Shmelev. Melting and Casting of Beryllium (Report No. 2048) 536

Vol'skiy, A.N., N.V. Vyatkina, E.P. Zvereva, Yu.L. Kal'tman, and T.S. Poschilo. Production of Chemically Pure Strontium, Barium, Magnesium, and Calcium (Report No. 2050) 542

Bochvar, A.A., G.Ya. Sergeyev, A.A. Zhul'kova, L.I. Kolobneva, and G.I. Tomson. Effect of Thermal Cycling and Cooling on the Dimensional and Structural Stability of Various Metals and Alloys (Report No. 2190) 554

Konobeyevskiy, A.S., G.Ya. Sergeyev, V.V. Titova, B.M. Levitskiy, and Yu.N. Sokurskiy. Influence of the Structure and Properties of Uranium on Its Behavior Under Irradiation (Report No. 2191) 573

Card 9/11

VYATKINA, V.M.; IVANOVA, Z.A.; MOLCHANOV, A.P.

Phase discriminator. Radiotekhnika 13 no.10:39-44 O '58.
(MIRA 11:11)

(Radio frequency modulation--Receivers and reception)

MOLCHANOV, A.P.; VYATKINA, V.M.

Antenna system for the radio astronomical solar service. Izv. GAO 23 no.3:162-168 '64.

(MIRA 17:11)

VYATKINA, V.V.

AUTHOR: Alferov, V. V. SOV/30-59-2-48/60

TITLE: Continuous Fermentation and Breeding of Microorganisms (Nepreryvnoye brozheniye i vyrashchivaniye mikroorganizmov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 106-108 (USSR)

ABSTRACT: The Institut mikrobiologii Akademii nauk SSSR (Microbiological Institute of the Academy of Sciences, USSR) convened a conference from October 13 to 15, 1958 which dealt with the investigation of some working results in this field as well as with the discussion of a further intensification of the productions basing on the activity of microorganisms. The conference was attended by more than 200 representatives of academic and scientific branch research institutes, enterprises, sovnarkhozes, universities, as well as foreign scientists. The following lectures were heard:

N. D. Iyerusalimskiy spoke of the theoretical foundation of the method of continuous microbe breeding and its prospects of application in the microbiological industry.

Ye. A. Plevako, Vsesoyuznyy nauchno-issledovatel'skiy institut

Card 1/4 khlebopekarnoy promyshlennosti (All-Union Scientific Research Institute of Bread-Production Industry) dealt with the problem of the breeding of yeast in solutions containing molasses.

P. N. Fisher, K. P. Andreyev, V. A. Utenkova, M. Ya. Kalyuzhnyy and A. P. Kryuchkova, Vsesoyuznyy nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-spirtovoy promyshlennosti (All-Union Scientific Research Institute for the Industry of Hydrolysis and Sulfite Spirits) evaluated the theoretical and practical work in the field of continuous fermentation of wood hydrolyzates and sulfite liquor as well as their utilization for obtaining fodder yeast.

V. I. Mamonova, Krasnoyarskiy gidroliznyy zavod (Krasnoyarsk Hydrolysis Plant) said that the introduction and completion of the continuous process of yeast breeding made it possible to increase the output of yeast factories by ten times.

V. L. Yarovenko, A. L. Malchenko, Vsesoyuznyy nauchno-issledovatel'skiy institut spirtovoy i likero-vodochnoy promyshlennosti (All-Union Scientific Research Institute of the Spirit, Liqueur and Brandy Industry), V. M. Nakhmanovich, Dokshukinskaya nauchno-issledovatel'skaya laboratoriya (Dokshukinskaya Scientific Research Laboratory) reported on the

Card 2/4 experiment of applying the method of continuous fermentation

Continuous Fermentation and Breeding of Microorganisms SOV/30-59-2-48/60

of the starchy raw material and syrup in the alcohol and acetone-butanol industry.

S. A. Konovalov, All-Union Scientific Research Institute of the Alcohol, Liqueur and Brandy Industry reported on the problem of antiseptics in fighting infection due to ferments.

L. Yu. Medrinskaya, Institut mikrobiologii Akademii nauk USSR (Microbiological Institute of the AS UkrSSR) reported on the investigation of the morphological and physiological properties of yeast.

A. D. Kovalenko, Andrushevskiy spirtovoy zavod (Andrushevka Distillery), N. Ya. Savchenko, Malo-Viskovskiy spirtovoy zavod (Malo-Viskovskiy Alcohol-Distillery), L.R. Makarova, Smolenskiy Sovnarkhoz (Smolensk Sovnarkhoz) reported on some working results obtained by distilleries in the syrup fermentation by using the method of continuous flow.

M. S. Loytsyanskaya, Leningradskiy universitet (Leningrad University) characterized the correlation of reproduction processes and biochemical activity of acetic acid bacteria in the high-speed production of vinegar.

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N. M. Mironova, Microbiological Institute of the AS USSR spoke of the possibility of obtaining vitamin B_{12} by continuous breeding of propionic acid bacteria (propionovokislyye bakterii). E. L. Brinberg, O. I. Grabovskaya, Vsesoyuznyy nauchno-issledovatel'skiy institut antibiotikov (All-Union Scientific Research Institute of Antibiotics) reported on the application of this method in the production of penicillin.

V. V. Vyatkina, All-Union Scientific Research Institute of the Spirit, Liqueur, and Brandy Industry showed that the method of semi-continuous breeding of the fungus Aspergillus niger accelerates fermentation. B. V. Perfil'yev, Leningrad University reported on the results of investigations of the natural microflora by the method of capillary microscopy which he had developed.

V. A. Kordyum, Kiyev University demonstrated his new batcher for continuous breeding of microorganisms in laboratory practice.

J. Vintik and J. Ričica (Czechoslovakia) expressed their opinions on the methods of continuous breeding of microorganisms.

On this Conference it was pointed to the necessity of organizing the industrial production of cultures for continuous fermentation.

Card 4/4

26

VYATKINA, Ye.D., assistent

Comparative characteristics of the action of asmaglin and sodium salicylate in treating rheumatic fever. Trudy KGMI no.10:247-249 '63. (MIRA 18:1)

1. Iz kafedry gospital'noy terapii (zav. kafedroy - prof. I.B. Shulutko) Kalininskogo gosudarstvennogo meditsinskogo instituta.

KOZLYAKOV, V.V.; LAZAREV, V.N.; Prinimali uchastiye: VYATLEVA, N.G., inzh.; GARBUZ, V.S., inzh.

Experimental investigation of the plastic-elastic bending of models of inner bottoms in dry cargo ships. Trudy LKI no.38: 75-87 '62. (MIRA 16:7)

1. Kafedra stroitel'noy mekhaniki korablya Leningradskogo korablestroitel'nogo instituta (for Kozlyakov). 2. Kafedra konstruktsii sudov Leningradskogo korablestroitel'nogo instituta (for Lazarev).

(Hulls (Naval architecture))
(Deformations (Mechanics))

DOLBIK, M.S.; VYATOKHIN, V.I.

Distribution and geographical variability of layings of the gray partridge in White Russia. Vestsi AN BSSR. Ser. biial. nav. no.3: 122-124 '59. (MIRA 12:12)
(White Russia--Partridges) (Birds--Eggs and nests)

VYATSIR, A. [Vjacirs, Apolinarijs Stanislava d.]; AVDEYEVS, Ye., red.;
PASTARE, D., tekhn. red.

[Drilling and construction of driven wells] Urbsanas darbi un cauruļu
aku ierikosana. Riga, Latvijas Valsts izdevnieciba, 1960. 266 p.
[In Latvian] (MIRA 14:12)

(Wells)

TUMANOV, A.T., glav. red.; VYATKIN, A.Ye., red.; GARBAR, M.I., red.; ZAYMOVSKIY, A.S., red.; KARGIN, V.A., red.; KISHKIN, S.T., red.; KISHKINA-RATNER, S.I., doktor tekhn. nauk, red.; PANSHIN, B.I., kand. tekhn. nauk, red.; ROGOVIN, Z.A., red.; SAZHIN, N.P., red.; SKLYAROV, N.M., doktor tekhn. nauk, red.; FRIDLYANDER, I.N., doktor tekhn. nauk, red.; SHUBNIKOV, A.V., red.; SHCHERBINA, V.V., doktor geol.-miner. nauk, red.; SHRAYBER, D.S., kand. tekhn. nauk, red.; GENEL', S.V., kand. tekhn. nauk, red.; VINOGRADOV, G.V., doktor khoz. nauk, red.; NOVIKOV, A.S., doktor khoz. nauk,red.; KITAYGORODSKIY, I.I., doktor tekhn. nauk, red.; ZHEREBKOV,S.K., kand. tekhn. nauk, red.; BOGATYREV, P.M., kand. tekhn. nauk,red.; SANDOMIRSKIY, D.M., D.M., kand. tekhn. nauk, red.; BUROV, S.V., kand. tekhn. nauk, red.; POTAK, Ya.M., doktor tekhn.nauk, red.; KUKIN, G.N., doktor tekhn. nauk, red.; KOVALEV, A.I., kand.tekhn. nauk, red.; YAMANOV, S.A., kand. tekhn. nauk, red.; SHEFTEL', I.A., kand. khoz. nauk, st. nauchn. red.; BABERTSYAN, A.S., inzh., nauchn. red.; BRAZHNIKOVA, Z.I., nauchn. red.; KALININA, Ye.M., mlad. red.; SOKOLOVA, V.G., red.-bibliograf; ZENTSEL'SKAYA, Ch.A., tekhn. red.

[Building materials; an encyclopedia of modern technology] Konstruktsionnye materialy; entsiklopediia sovremennoi tekhniki. Glav. red. A.T.Tumanov. Moskva, Sovetskaia entsiklopediia. Vol.1. Abliatsiia - korroziia. 1963. 416 p. (MIRA 17:3)

1. Chlen-korrespondent AN SSSR (for Kishkin).

GRATSIANSKIY, V.P.; VYATSKIKH, I.A.

Some data on a favorable course of tuberculous osteitis. Vest. rent. i rad. 31 no.3:50-60 My-Je '56. (MIRA 9:9)

1. Iz Leningradskogo instituta khirurgicheskogo tuberkuleza i kostnosustavnykh zabolevaniy (dir., - deystvitel'nyy chlen AMN SSSR prof. P.G.Kornev)
(TUBERCULOSIS, OSTEOARTICULAR, therapy,
x-ray results (Rus))

ACCESSION NR: AP4034953 S/0181/64/006/005/1563/1565

AUTHORS: Vyatskin, A. Ya.; Pilyankevich, A. N.; Trunev, V. V.

TITLE: Transmission of electrons through solids

SOURCE: Fizika tverdogo tela, v. 6, no. 5, 1964, 1563-1565

TOPIC TAGS: electron, metal film, thin film, electron reflection, aluminum, copper, gold

ABSTRACT: The transmission of electrons through thin metallic films was investigated experimentally. On the basis of the new data an empirical formula for the relative integrated transmission coefficient (the ratio of the current passing through the film and the incident current I_0) can be written in the more general form: $\eta = \exp[-\alpha(E_0, Z) x^{p(Z)}]$. Here x is the thickness of the film, Z is the atomic number of the film material, and E_0 is the energy of the incident electrons. The range of sample thicknesses was from 500 to 40 000 Å and was determined to within 9%. Incident electron energies were used in the range 4 kev $< E_0 <$ 30 kev and $I_0 \simeq 5 \cdot 10^{-7}$ a. Experimental values for p were obtained: Al - 1.9; Cu - 1.7; Au - 1.3

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ACCESSION NR: AP4034953

Orig. art. has: 7 equations and 1 table.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: 09Dec63 DATE ACQ: 20May64 ENCL: 00

SUB CODE: SS, MM NO REF SOV: 003 OTHER: 001

Card 2/2

VYATSKIN, A. Ya.

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

3

Theory of secondary electron emission from metals. I. Secondary electron-emission current from metals. The coefficient of secondary emission. A. Ya. Vyatskin. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 9, 826-39(1939).—Math. theoretical. Assuming that secondary emission is a surface phenomenon conditioned by a potential barrier on the metal surface, and that the secondary electrons are torn from the metal by Coulomb interaction with primary electrons, V. uses the methods of wave mechanics to develop a theory of emission which he finds to be more satisfactory than that of Frohlich (*C. A.* 26, 4237, 4244). A comparison of calcd. with exptl. values taken from the literature (Warnecke and de Boer) shows good agreement (*C. A.* 30, 7025⁵, 8000² and *Physica* 4, 473(1937). II. Energy distribution of secondary electrons. *Ibid.* 1049-60.—V. derives complicated theoretical formulas for the energy-distribution function of secondary electrons expelled from metals on bombardment of the metal surface by primary electrons as detd. by a spherical condenser, by magnetic analysis or by normal energies. These functions give continuous spectra with high max. and are independent of the energy of the primary electrons; most of the secondary electrons have energies below 20 v. The energy of secondary electrons from alkali metals (Cs, Rb, K, Na, Li) is much less than that of the electrons expelled from heavy metals and the max. is strongly shifted to the left and lies between 1 and 2 v. The predictions of the theory are in general in good agreement with available exptl. data. Cf. Haworth (*C. A.* 29, 6831⁹) and Starman (*C. A.* 21, 2421).

F. H. Rathmann

COMMON ELEMENTS

MATERIALS INDEX

OPEN

COMMON VARIABLES INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

M

1

Determination of the Inner Potential of Metals. A. Y. Vyatekin (*Compt. rend.* (*Doklady*) *Acad. Sci. U.R.S.S.*, 1940, **27**, 930-933; *Brit. Abs.*, 1945, [A I], 105).—Values of the inner potential, W, defined as the kinetic energy which a valency electron must acquire in order to leave a metal atom, have been calculated for several alkali, alkaline earth, and transition elements, published values of the electronic work-function ϕ and the coeff. of secondary emission being used. For the alkali metals, $W = 2\phi$, as predicted by the modern theory of metals. In many cases the results agree well with those derived from electron-diffraction measurements.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VYATSKIN, A. Ya.

USSR/Physics - Electron Emission, Jun 50
Secondary
Thermoelectric

"Role of Surface and Volume Effects in Secondary Electron Emission of Metals," A. Ya. Vyatskin, Leningrad Inst of Precision Mech and Opt

"Zhur Eksper i Teoret Fiz" Vol XX, No 6, pp 547-556

Regards secondary electron emission of metals as accumulating from additive effects: "surface (due to potential barrier of surface) and "volume" (due to volumetric periodic field of metal's

163T92

USSR/Physics - Electron Emission, Jun 50
Secondary (Contd)

lattice). Volume effect creates additional maximums in distribution function of secondary electrons (fine structure) and causes phenomenon of maximum and drop in curve of emission coefficient versus energy of secondary electrons. Submitted 24 Sep 49.

163T92

VYATSKIN, A. Ya.

USSR/Physics - Electrons Jun 50
Scattering (Dispersion), Inelastic
Lattice

"Inelastic Scattering of Electrons Passing Through a Metal," A. Ya. Vyatskin, Leningrad Inst of Precision Mech and Opt

"Zhur Eksper i Teoret Fiz" Vol XX, No 6, pp 557-565

Vyatskin investigates, for nonrelativity energies, inelastic scattering of electrons in metals due to their Coulomb interaction with lattice electrons. Theory leads to (a) conclusion on

[redacted] 163T93

USSR/Physics - Electrons (Contd) Jun 50

approximate nondependence of length of free path of medium-energy electrons (100-2,000 ev) upon their energy, and (b) linear dependence of total free path (stopping) upon energy and also conclusion on strong dependence of scatter flight path upon crystal-lattice constant (lambda about $1/a^4$). Submitted 24 Sep 49.

[redacted] 163T93

VYATKIN, A. Ya.

USSR/Physics - Optics, Semiconductors Jul 51

"Letters to the Editor"

"Zhur Eksper i Teoret Fiz" Vol XXI, No 7, pp 851-855

"A New Method for Determining the Depth of Output of Secondary Electrons," A. Ya. Vyatkin, Leningrad Inst of Precision Mech and Optics; "Thermoelectric Properties of Semiconductors," G. Ye. Pikus, Leningrad Polytech Inst. "Gamma-Rays of Cs^{134}," V. S. Shpinel, Moscow State U; "Remarks on the Work

189T89

LC

USSR/Physics - Optics, Semiconductors Jul 51
(Contd)

of Haigh and Smith," B. N. Klyarfeld, All-Union Elec Eng Inst (cf. C. Haigh and T. Smith, Phil Mag, 41, No 317, 1950.

189T89

LC

Sect A

5836. Influence of the electron exchange on the non-elastic electron scatter in metals. A. Ya. Vyatkin. *Zh. Eksper. Teor. Fiz.*, 21, 1350–3 (No. 12, 1951) *In Russian.*

See also Abstr. 8711 (1950). The influence of the electron exchange on the differential coefficient of damping, and therefore on the differential cross-section of scatter, is investigated. It is natural to assume that the beam of non-elastically scattered electrons is not polarized, so that the wave function of the system of two interacting electrons must be a combination of a symmetrical and an antisymmetrical function. The wave function for a system of two electrons involves the co-ordinates of the scattered and the lattice electron. The antisymmetrical function contains a term expressing the law of conservation of the impulse. As a result it is seen that the electron exchange increases the effective cross-section of scatter by 10%. The angular distribution of the scattered electrons is affected even more by the exchange. If two of the terms of the final expression are discarded, we obtain Rutherford's formula for the scatter of α-particles in the Coulomb field of the nucleus. Both effects increase at large angles, the difference being that instead of an infinite increase of the diff. cross-sect. for $\theta \rightarrow \pi/2$, the diff. cross-sect. will here approximate a finite value, and, furthermore, for some intermediate value of θ, $0 < \theta \lesssim \pi/2$, where the resonance condition $\bar{K}' - \bar{K}\cos\theta' = (\bar{K} + 2\pi\bar{n}/a)$ is satisfied, the diff. coefficient of damping and diff. cross-sect. of scatter become ∞. B. F. KRAUS

Leningrad Inst. Precision Mechanics & Optics

VYATSKIN, A.Ya.

[illegible]

Non-elastic resonance scattering of electrons in metals. Zh.eksper. teor.
Fiz. 23, No.2, 147-50 '52. (MLRA 5:9)
(PA 56 no.668:5518 '53)

VyATSKIN, A. YA.

FD-793

USSR/Nuclear Physics - Electron scattering

Card 1/1 Pub. 146-6/21

Author : Vyatskin, A. Ya.

Title : Diffraction and inelastic scattering of electrons

Periodical : Zhur. eksp. i teor. fiz., 27, 162-170, Aug 1954

Abstract : The phenomena of diffraction and of inelastic scattering of electrons of medium velocities in metals are due to Coulomb interaction of electrons diffracting on lattice electrons. Both phenomena are considered as two mutually connected aspects of electron passage through the metal lattice. Strong effect of diffraction on inelastic scattering and vice versa was established. Eight references including 2 foreign.

Institution : Leningrad Institute of Precision Mechanics and Optics

Submitted : September 17, 1953

VYATSKIN, A. YA.

USSR/Physics - Spectroscopy

Card 1/1 : Pub. 22 - 15/44

Authors : Vyatskiy, A. Ya., and Nagibina, I. M.

Title : Study of the width of spectral lines of an arc source of light

Periodical : Dok. AN SSSR 98/1, 59-62, Sep 1, 1954

Abstract : An experimental study of the dependence of spectral line widths on the concentration of mixtures used for spectral analysis with the help of an ac electric current arc is described. Four references (1940-1953). Graphs; table.

Institution : Leningrad Institute of the precise technique and optics

Presented by: Academician A. N. Terenin, April 19, 1954

VYATSKIN, A.YA.

G-4

Category : USSR/Electricity - Conductors

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1610

Author : Vyatskin, A.Ya.
Title : On the Braking of Medium-Velocity Electrons in a Solid Body.

Orig Pub : Sb. statey Leningr. in-ta tochnoy mekhan. i optiki, 1955, vyp. 18, 154-162

Abstract : Investigation was made of the inelastic scattering of electrons by many metals and semi-conductors (Cu, Ag, Au, Pt, MgO, CaO, SiO, BaO). The energies of the primary electrons range from 200 to 456 ev. Values were obtained for the maxima of the inelastic scattering and compared with the author's theoretical calculations (Ah. eksperim i teor. Fiziki, 1950, 20, 557-565). This comparison shows that the inelastic-scattering maxima are due to interzonal transitions. The author evaluates also the experimental works by many other authors on the study of the dependence of the braking on the energy of the primary electrons. These data are evidence of the predominant role of the interzonal transitions in inelastic scattering of medium-velocity electrons in metals.

Card : 1/1

FD-3122

VYATSKIN, A. YA.

USSR/Physics - Electron deceleration

Card 1/1 Pub. 153 - 21/24

Author : Vyatskin, A. Ya.

Title : Brief communication. Criterion establishing the limit of application of the linear law of deceleration of electrons in a solid body from the high-energy side

Periodical : Zhur. tekh. fiz., 25, No 6 (June), 1955, 1155-1157

Abstract : Previously (ZhETF, 20, 557, 1950) the author considered the problem of deceleration of electrons of medium energies in a solid body (metals), and obtained the result that the deciding contribution to the total loss is the interzonal transitions subject to the law of momenta (selection rule): $k' = k + (2\pi/a)\vec{\nu} + q$, where k,k' are wave vectors of the lattice electron before and after collision, ν_2 is a whole number, a is the lattice constant (cube), and $hq = h(K-K')$ is the momentum yielded by the scattered electron. In the present note the author clarifies up to what values of the energies of the scattered electrons E the linear law of deceleration: $-dE = BdX$ (B=const.) is correct. He considers the matrical element for interzonal transitions.

Institution :

Submitted : March 28, 1955

VYATSKIN, A.Ya., kand.fiz.-mat.nauk, dotsent; GUTKIN, A.A., inzh.; MAKHOV, A.F., assistent

Germanium phototriode. Izv.vys.ucheb.zav.; prib. no.5:11-13 '58. (MIRA 12:6)

1. Leningradskiy institut tochnoy mekhaniki i optiki.
(Photocells) (Germanium)

57-28-4-8/39

AUTHORS: Vyatskin, A. Ya., Makhov, A. F.

TITLE: ~~The Retarding of~~ Electrons in Some Metals and Semiconductors (Tormozheniye elektronov v nekotorykh metallakh i poluprovodnikakh)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 4, pp.740-747 (USSR)

ABSTRACT: The retarding of electrons of medium energy was here investigated according to the method of the irradiation of thin free films of the investigated material. Curves of the dependence of the current passing through the film upon the energy of the impinging electrons were plotted. The extrapolation of these curves until their point of intersection with the energy-axis determines the path length of electrons which is equal to the thickness of film. The films needed for the measurement with a thickness of from some mμ to some μ were obtained by means of evaporation in a vacuum. This took place in two stages: at first films with the initial thickness (d_0^*) were produced and fixed to the target. After irra-

Card 1/2

57-28-4-8/39

The Retarding of Electrons in Some Metals and Semiconductors

diation the thickness of these films was increased by spraying them with an additional quantity of the substance. The production of the films with the initial thickness took place according to the method generally described in Ref 9. The passage of the electrons through the Cu-, Bi-, Ge- and Si-films was measured. For these substances the retardation law in the domain of 2keV $< E <$ 10 - 16 keV was found in the form of $d = CE^{1,4}$. C denotes a constant. E denotes the electron energy, d denotes the path length of the electrons. There are 6 figures, 1 table, and 9 references, 5 of which are Soviet.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute for Fine Mechanics and Optics)

SUBMITTED: July 23, 1957

Card 2/2

24(6) SOV/57-28-10-18/40

AUTHOR: Vyatskin, A.Ya.

TITLE: Theory of Inelastic Scattering of Electrons in Metals I.
(Teoriya neuprugogo rasseyaniya elektronov v metallakh I.)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, Vol 28, Nr 10, pp 2217-2227 (USSR), 1958

ABSTRACT: This paper gives an account of an attempt to give a more precise answer to the problem approached in the paper cited by reference 1. An electron, which moves beneath the surface onto which the electrons impinge with an elevated velocity in a perpendicular direction to the surface is subjected to a Coulomb (kulonovskoye) interaction with the lattice electrons. The wave function of the electron is written down as a plain wave, formula (1). The differential cross section is determined from (15). After this the slowing down and the mean deceleration can be determined, as the energy transferred in one collision is known. The transitions with $n = 0$, which correspond to formulae (20) and (23) are termed "free" transitions (that is to say, those which correspond to the interaction with free electrons). The transitions with $n \neq 0$, which obey the momentum theorem (21) and formula (24) are termed interzonal n-transitions. The free transitions are primarily internal-zone transitions, they may be, however, also be interzonal

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transitions. The averaged energy transferred with respect to the initial states of the lattice electron takes the form of (25) and (26) for the two types of transitions, respectively. Formulae for the attenuation coefficient, the cross section, and for the slowing down for both types of transitions are presented. It is shown that the majority of the energy losses caused by the free transitions is due to the greater part of the electrons located in the Fermi-band. The proportion due to the electrons in the upper, thin Fermi-zone is negligibly small.

Summary: This paper yields the same results as the paper cited by reference 1. The information gained is to the point that the transitions generated by the paired Coulomb interaction of the electrons with the lattice electrons (these transitions being investigated assuming a "single-electron approximation of the weak binding") fall to two categories: free and interzonal n-transitions. The losses encountered with either type of transitions are of the same order. These two types of transitions are distinctive of two principal mechanisms of loss formation (apart from those which are caused by the excitation of the plasma). There are 11 references, 5 of which are Soviet.

Card 2/3

S/139/60/000/03/009/045
E140/E335

AUTHORS: Vyatskin, A.Ya. and Kornyushkin, Yu.D.

TITLE: Electron-energy-loss Spectra in NaCl and KCl

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, Nr 3, pp 56 - 62 (USSR)

ABSTRACT: An experimental verification of the results of Vyatskin's work in Ref 1. The previous work considered the theory of inelastic electron scattering in solid crystals and related to the narrow filled bands of initial electron states in metals. Transitions are divided into two forms - interband n transitions, which are split, giving regular characteristic losses, and free transitions (noise). The characteristic losses were observed but noise was absent (Ref. 3). The present work was carried on by measuring retardation curves in a spherical condenser. Magnetic fields and surface charges were carefully eliminated. The results indicate the validity of the theory, showing B

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S/139/60/000/03/009/045
E140/E335

Electron-energy-loss Spectra in NaCl and KCl

the presence of both characteristic losses and noise. The lines correspond to excitation or decay of levels and bands in the forbidden zone, interzone transitions or combinations - two successive inelastic collisions such as splitting of interzone n transitions and decay of a luminescent centre.
Given the correctness of the initial assumptions, the Bohr method gives results in good agreement with the experimental curves.
There are 3 figures, 2 tables and 5 Soviet references.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: May 20, 1959

Card 2/2

S/181/60/002/01/26/035
B008/B014

AUTHOR: Vyatskin, A. Ya.

TITLE: Theory of Non-elastic Electron Scattering 21 in Solids

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 122-132

TEXT: In the article under review, the author discusses the non-elastic scattering of electrons with non-relativistic energies in metals in the strongcoupling approximation. The scattering was caused by Coulomb interaction of the electrons. It was found that two types of transition were formed by Coulomb (pair) interaction between these electrons and lattice electrons: free and $\vec{n}$-transitions between bands. In the last-mentioned transitions the scattered non-relativistic electrons suffer abrupt characteristic energy losses depending on the lattice parameters. This general conclusion which holds in two extreme approximations (weak (Ref. 1) and strong coupling) must also hold for all other intermediary cases. This conclusion applies to metals, but may also be extended to dielectrics and semiconductors. In low wave number approximation, most results (energy lost in $\vec{n}$-transitions, several angular dependences) are

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Theory of Non-elastic Electron
Scattering in Solids

S/181/60/002/01/26/035
B008/B014

similar to the analogous results obtained from approximation of the weak coupling (Ref. 1). The losses described in the strong-coupling approximation, which are caused by interaction between electrons and lattice electrons, form the basis of the non-elastic scattering mechanism. There are 6 references: 1 Soviet and 1 Japanese.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: April 14, 1959

√B

Card 2/2

VYATSKIN, A.Ya.; MAKHOV, A.F.

Absorption and range of electrons in solids. Fiz. tver. tela 2 no.5:887-893 My '60. (MIRA 13:10)

1. Institut tochnoy mekhaniki i optiki, Leningrad.
(Electrons)

VYATSKIN, A.Ya.

Angular dependence of nonelastic electron scattering in metals.
Fiz. tver. tela 3 no. 3:776-780 Mr '60. (MIRA 14:5)

1. Leningradskiy institut tochnoy mekhaniki i optiki.
(Electrons—Scattering)

VYATSKIN, A. YA., DOC PHYS-MATH SCI, "CERTAIN PROCESSES OF INELASTIC SCATTERING OF ELECTRONS IN METALS." SVERDLOVSK, 1961. (ACAD SCI USSR, URAL AFFILIATE). (KL, 3-61, 202).

20788

S/181/61/003/003/013/030
B102/B205

24.7900 (1055,1136,1144,1153)

AUTHOR: Vyatskin, A. Ya.

TITLE: Angular dependence of inelastic electron scattering in metals

PERIODICAL: Fizika tverdogo tela, v. 3, no. 3, 1961, 776-780

TEXT: This is the continuation of three previous publications of the present author (Ref. 1: ZhETF, 21, 1350, 1951; Ref. 2: ZhTF, XXVIII, 2217, 1958; Ref. 3: FTT, II, 122, 1960), the results of which are discussed in the introduction. These papers form the basis of a theoretical study which has now been made of the effect of electron exchange upon the differential inelastic scattering cross section of electrons in metals. In Ref. 1, the author presented a general study of the effect of electron exchange upon inelastic electron scattering in metals; Ref. 2 deals with the inelastic electron scattering at non-relativistic energies and offers a solution to the problem in first perturbation-theoretical (Born) approximation. In Ref. 3, the spectrum of inelastically scattered electrons has been studied in strong-coupling approximation. Two modes of transition were found to exist: free transitions corresponding to the interaction of free electrons, and

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band-to-band $\vec{n}$-transitions following the law of conservation of the quasi-momentum: $\vec{K}' = \vec{K}+\vec{q}+\vec{n}$. A special study has now been made of the effect of electron exchange upon the latter. It is assumed that the electron beam penetrating through the metal is unpolarized (all possible spin directions occur), and that the wave function describing a two-electron system can be represented as a combination of a symmetric and an antisymmetric function. If the statistical weight of the states corresponding to the various possible spin directions is taken into account, one obtains an expression for the transition probability of the form

$\gamma = \frac{1}{4}(\gamma_{sym}+3\gamma_{antisym})$ and $\gamma = \frac{2\pi}{\hbar}\int|J_{k'K',kK}|^2 dO$, respectively, where $J_{....} = J$ is the matrix element for the transition $kK \rightarrow k'K'$; $dO = \sin\vartheta\, d\vartheta\, d\varphi$ is the element of the solid angle, and ϑ is the scattering angle. The transition probability is determined by calculating the matrix elements of the symmetric and the antisymmetric parts:

$$[J_a]_{e} = C\left([\varepsilon_{\psi\psi'}(R, r; R, r)+\varepsilon_{\psi\psi'}(r, R; r, R)]+ + [\varepsilon_{\psi\psi'}(R, r; r, R)+\varepsilon_{\psi\psi'}(r, R; R, r)]\right). \qquad (9)$$

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Angular dependenue ...

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and

$$[J_n]_n = C\{[\varepsilon_{\psi\psi^*}(R, r; R, r) + \varepsilon_{\psi\psi^*}(r, R; r, R)] - [\varepsilon_{\psi\psi^*}(R, r; r, R) + \varepsilon_{\psi\psi^*}(r, R; R, r)]\}.$$

(10) (11) (13)

$$\varepsilon_{\psi\psi^*}(R, r; R, r) = \Omega\frac{4\pi}{q^2}[a_n(\mathbf{k}) + c^*_{-n}(\mathbf{k}')].$$

$$\varepsilon_{\psi\psi^*}(R, r; r, R) = \varepsilon_{\psi\psi^*}(r, R; R, r) = \Omega 4\pi\left[\frac{a_n(\mathbf{k})}{(\mathbf{K}' - \mathbf{k} - \mathbf{n})^2} + \frac{a^*_{-n}(\mathbf{k}')}{(\mathbf{K}' - \mathbf{k})^2}\right].$$

In the following, the differential cross section for the band-to-band $\vec{n}$ transitions is studied with regard to the electron exchange. Proceeding from the general expression

$$dQ_n = \frac{4}{\Omega a_0^2}\frac{K'}{K}\left\{\frac{[a_n(\mathbf{k}) + a^*_{-n}(\mathbf{k}')]^2}{q^4} - \frac{a_n(\mathbf{k}) + a^*_{-n}(\mathbf{k}')}{q^2}\left[\frac{a_n(\mathbf{k})}{(\mathbf{K}' - \mathbf{k} - \mathbf{n})^2} + \frac{a^*_{-n}(\mathbf{k}')}{(\mathbf{K}' - \mathbf{k})^2}\right] + \left|\frac{a_n(\mathbf{k})}{(\mathbf{K}' - \mathbf{k} - \mathbf{n})^2} + \frac{a^*_{-n}(\mathbf{k}')}{(\mathbf{K}' - \mathbf{k})^2}\right|^2\right\} dO. \quad (14)$$

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Angular dependence ...

the approximate expression

$$\overline{dQ_n} \simeq \frac{4}{a_0^2\Omega}[a_n(\mathbf{k})]^2 \left\{ \frac{1}{K^4 \sin^4\vartheta} - \frac{1}{K^2 \sin^2\vartheta\,(K\cos\vartheta\mathbf{j}-\mathbf{k}-\mathbf{n})^2} + \frac{1}{(K\cos\vartheta\mathbf{j}-\mathbf{k}-\mathbf{n})^4} \right\} \cos\vartheta\, dO. \tag{20}$$

$$K'\mathbf{j} = \mathbf{K}'; \ |\mathbf{j}| = 1.$$

is obtained for large scattering angles. If $\vec{k}$ can be neglected with respect to $\vec{K}'$, one has

$$\overline{dQ} = \left(\frac{e^2}{E}\right)^2 \left(\frac{1}{\sin^4\vartheta} - \frac{1}{\sin^2\vartheta\cos^2\vartheta} + \frac{1}{\cos^4\vartheta} \right) 4\cos\vartheta\, dO. \tag{21}$$

This is a well-known expression for the differential cross section, which accounts for the exchange in the case of Coulomb interaction of free electrons. There are 4 Soviet-bloc references.

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B102/B205

Angular dependence ...

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: July 6, 1960

Card 5/5

VYATSKIN, A.Ya.

Cross section for inelastic electron scattering in metals. Fiz. tver.tela 4 no.2:555-556 F '62. (MIRA 15:2)

1. Leningradskiy institut tochnoy mekhaniki i optiki.
(Electrons—Scattering)

24.6610
27.2400

36887
S/181/62/004/004/031/042
B102/B104

AUTHORS: Vyatskin, A. Ya., and Pilyankevich, A. N.

TITLE: Some laws of electron passage through solids

PERIODICAL: Fizika tverdogo tela, v. 4, no. 4, 1962, 1038-1045

TEXT: The attempts hitherto made to obtain general laws from experiments of electron penetration into solids have not given satisfactory results. Therefore, the authors have tried to find semi-empirical laws which should be as general as possible. The theory is based on the combination of empirical integral characteristics and quantities describing the elementary processes. The electron deceleration in the solid is described by a power function of the type $X = CE_0^n$, where X is the maximum path length, E_0 the initial energy, and $n=n(\bar{\varepsilon}, B, C, E_0)$; $B = 2\pi e^4 ZN$, $\bar{\varepsilon}$ mean transferred energy, N - atomic concentration, ZN - effective number of electrons per cm^3. The integral characteristics of the electron transition through a solid film of the thickness x are given by

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B102/B104

Some laws of electron passage...

$$\eta = \int_{-\frac{\pi}{2}}^{+\frac{\pi}{2}} E(x, \zeta_0, \theta)\, d\theta = \eta(x, E_0);$$

$$r = \int_{-\frac{\pi}{2}}^{+\frac{\pi}{2}} R(x, E_0, \theta)\, d\theta = r(x, E_0); \qquad (9)$$

$$\gamma = \int_{-\frac{\pi}{2}}^{+\frac{\pi}{2}} \Gamma(x, E_0, \theta)\, d\theta = \gamma(x, E_0);$$

$$\eta + r + \gamma = 1. \qquad (10)$$

the relative number of passed electrons is $\zeta = \zeta(x, E_0, \vartheta)$, the reflection coefficient is $R = R(x, E_0, \theta)$, and the relative absorption is $\Gamma = \Gamma(x, E_0, \vartheta)$ for normal incidence; ϑ is the scattering angle and θ the

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S/181/62/004/004/031/042
B102/B104

Some laws of electron passage...

reflection angle. The electron absorption and the spread of the transverse paths is given by $-\partial\eta/\partial x = \partial(\gamma+r)/\partial x$; in Ref. 6 (FTT, 2, 887, 1960) the respective characteristic was given by $\partial\gamma/\partial x = -\partial\eta/\partial x$. The mean paths $\bar{x}$ and the relative currents $\eta = \exp(-\alpha x^p)$ are determined for Cu, Ge, Si, Al ($p \simeq 2$), and Pb, Bi ($p \simeq 1$);

$$1)\ p=1 \qquad \bar{x} = a\int_0^\infty x e^{-ax} dx = \frac{1}{a}; \tag{17а}$$

$$2)\ p=2 \qquad \bar{x} = 2\alpha\int_0^\infty x^2 e^{-ax^2} dx = \frac{1}{2}\left(\frac{\pi}{a}\right)^{1/2}. \tag{17б}$$

$$\eta = \exp A\left[-\frac{x}{aE_0^k}\right]^p; \quad \begin{matrix} p=1 & A=1; \\ p=2 & A=\frac{\pi}{4}. \end{matrix} \tag{20}$$

are obtained. Finally, Seliger's method (Phys. Rev. 100, 1029, 1955) of "normalization" of the functions $\eta(x)_{E_o}$ and $\eta(E_o)_x$ is discussed. It is

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S/181/62/004/004/031/042
B102/B104

Some laws of electron passage...

shown that in the first case normalization is possible if the p's of all curves are equal, in the second one, if all m's are equal (m=n-1).

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki
(Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: January 2, 1962

Card 4/4

[illegible] the cross section for the inelastic scattering of electrons [illegible]

Card 1/2

Dirac model, the expression obtained for the average cross section is $Q_n \approx 10^{-19} Z^{2b}$

[illegible] Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Insti-
[illegible]

[illegible] SUB CODE: NP, [illegible]

[illegible]

Card [illegible]

VYATSKIN, A.Ya.; PILYANKEVICH, A.N.; TRUNEV, V.V.

Passage of electrons through solids. Fiz. tver. tela 6 no.5:
1563-1564 My '64. (MIRA 17:9)

1. Leningradskiy institut tochnoy mekhaniki i optiki.

S/181/62/004/002/044/051
B102/B138

AUTHOR: Vyatskin, A. Ya.

TITLE: Inelastic electron scattering cross section in metals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 2, 1962, 555 - 556

TEXT: This is a continuation of previous papers (Vyatskin, ZhTF, 28, 2217, 1958; 2455, 1958) in which inelastic electron scattering in metals was considered, which was caused by Coulomb pair interaction with the lattice electrons. There, the problem was solved in the Born approximation of perturbation theory and in band approximation for the lattice electrons. Certain formulas obtained there are now generalized and improved, since it is no longer assumed that the electron energy is far from the band edge; $\frac{\vec{k}\vec{n}}{n^2} \ll 1$, $\vec{k}$ - wave vector of lattice electron, $\vec{n} = \vec{n}(n_1,0,0)$ or $\vec{n} = \vec{n}(n_1,n_2,n_3)$, $n_{1,2,3}/2\pi$ are the vector components of the reciprocal lattice. For the one-dimensional and the three-dimensional cases, respectively, the following averaged total scattering cross sections are

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S/181/62/004/002/044/051
B102/B138

Inelastic electron scattering...

obtained :

$$Q_{n_1,0,0} = \frac{4\pi e^4 N s_{n_1,0,0} |V_{n_1,0,0}|^2}{\varepsilon_{n_1} E (\varepsilon_{n_1} - 4\varepsilon_{\Phi})^2}; \qquad (1)$$

$$Q_{\Sigma_n} = \frac{2\pi e^4 N}{E} \sum_n{}' s_n \frac{|V_n|^2 \sin^2 \chi_n}{\varepsilon_n (\varepsilon_n - 4\varepsilon_{\Phi})^2} \ln\left(\frac{E}{\varepsilon_n} - 1\right) \qquad (2).$$

E- initial electron energy, N - electron concentration in a lattice, $V_{n_1,0,0}$, or V_n are the Fourier coefficients of the lattice potential, $s_{n_1,0,0}$, or s_n are the repetition factors; $\varepsilon_n = \frac{\hbar^2}{2m} n^2$ and $\varepsilon_{n_1} = \frac{\hbar^2}{2m} n_1^2$ are the energies transferred in band-to-band $\vec{n}$-transitions; $\chi_n = (\hat{\vec{n},\vec{K}})$, $\vec{K} \parallel x$ and perpendicular to the surface, ε_{Φ} - limiting Fermi energy; $\varepsilon_{n,n_1} = 4\varepsilon_{\Phi}$ is the electron diffraction condition for ε_{Φ}. There are 2 Soviet references.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Precision Mechanics and Optics)

SUBMITTED: October 20, 1961

Card 2/2

VYATSKIN, I.

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4

Nitration of benzene by oxides of nitrogen in the glow discharge. D. Avanesov and I. Vyatskin. *Trudy IKKhTI* 1939, No. 7, 60-4; *Khim. Referat. Zhur.* 2, No. 5, 43(1939).—Nitration of vapors of C_6H_6 was performed by gaseous N_2O_4 in a glow discharge in a Siemens type of tube. Rate of flow of the gases and intensity of discharge could be regulated at will. The products of the reaction comprised: nitrobenzene, m-dinitro- and trinitrophenols.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

VYATKINA, A.M.

Snow cover in the Shchugor Basin. Izv. Komi. fil. Geog. ob-va SSSR no.8:49-55 '63. (MIRA 17:6)

66179

~~9(2,5)~~ 24.2600 SOV/146-58-5-2/24

AUTHORS: Vyatskiy, A.Ya., Candidate of Physical Mathematical Sciences, Docent, Gutkin, A.A., Engineer, and Makhov, A.F., Assistant

TITLE: Germanium Phototriode

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Priborostroyeniye, 1958, Nr 5, pp 11-13 (USSR)

ABSTRACT: The article gives preliminary results of tests on flat germanium phototriodes. They are examined for their sensitivity. Qualities of voltage and amperage under varying lighting are also taken into consideration. Zh.I. Alferov, B.M. Konovalenko, S.M. Ryvkin, V.M. Tuchkevich, and A.I. Uvarov have done extensive studies in the field of flat hermanium phototriodes. Figure 1 shows the lighting layout of the germanium phototriode. Figure 3 shows statical volt-ampere characteristics of the phototriode under varying lighting. (1 - no light; 2 - lighting of 25 lux; 3 - lighting of 44 lux; 4 - lighting of 57 lux; 5 - lighting of 80 lux, and 6 - lighting of 124 lux). Figure

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Germanium Phototriode SOV/146-58-5-2/24

3 illustrates the distribution of sensitivity on the lighted surface of the phototriode. Finally, the authors investigate measurement of sensitivity in connection with the location of the lighted spot on the surface of the phototriode. There are 2 graphs, 1 layout and 2 Soviet sources.

ASSOCIATION: Leningradskiy institut tochnoy mekhaniki i optiki (Leningrad Institute of Fine Mechanics and Optics)

Card 2/2

VYATSKIY, D.

Agronomist

Chief agronomist of the Dept of Agriculture c 47.

Soviet Source: N: Sovetskaya Kirgiziya 21 Feb. 47 Frunze

Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. 42192

L 10209-66 EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(l)/ETC(m) WW

ACC NR: AP5028548 SOURCE CODE: UR/0286/65/000/020/0162/0162

40
B

AUTHORS: Yermolov, I. N.; Krakovyak, M. F.; Vyatskov, I. A.

44 55 44 55 44 55

ORG: none

44 55

TITLE: Ultrasonic flaw detector probe. Class 42, No. 167664 /announced by Central Scientific Research Institute of Technology and Machine Construction (Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 162

44 55 14

TOPIC TAGS: ultrasonic flaw detector, ultrasonic inspection

ABSTRACT: This Author Certificate presents an ultrasonic flaw detector probe containing a piezoelement, a prism with a catcher, and a protector protecting the prism from wear. To decrease the noise resulting from reflections of ultrasound from the front edge of the protector, the protector is provided with a flange (catcher). The flange covers, for example, the front and top face of the prism and is fabricated as a unit with the protector. The ultrasonic beams originating in the protector and not penetrating the product pass into the prism catcher and are damped. To improve the directionality of the ultrasonic beam in products

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L 10209-66

ACC NR: AP5028548

with rounded surfaces, the contact surface of the protector is made in the shape of the controlled product. The protector itself is fabricated from material in which the velocity of transverse ultrasonic waves is greater than that in the material of the controlled product.

SUB CODE: 09, 13/ SUBM DATE: 14Dec63

Card 2/2

KOZMINSKAYA, I.F.; VYATKINA, N.Ye.; DROZDOVA-TIKHOMIROVA, A.A.

Infestation of fish with Diphyllobothrium latum larvae in the bodies of water of Moscow Province. Med. paraz. i paraz. bol. 34 no.2:229-230 Mr-Ap '65. (MIRA 18:11)

1. Parazitologicheskiy otdel Moskovskoy oblastnoy sanitarno-epidemiologicheskoy stantsii.

ACC NR: AP6035504 (N) SOURCE CODE: UR/0135/66/000/011/0031/0033

AUTHOR: Yermolov, I. N. (Candidate of technical sciences); Krukovyak, M. F. (Engineer); Vyatskov, I. A. (Engineer); Rakhmanov, V. V. (Engineer)

ORG: TsNIITMASh

TITLE: Ultrasonic inspection of butt-welded boiler pipe joints

SOURCE: Svarochnoye proizvodstvo, no. 11, 1966, 31-33

TOPIC TAGS: ultrasonic inspection, welding inspection, pipe

ABSTRACT: The authors describe specialized inspection probes developed at the Central Scientific Research Institute of Technology and Machine Building in 1962 for checking welded joints in thin boiler tubes. The improved directivity of ultrasonic waves in these units gives a higher signal-to-noise ratio. The surface of the probe which contacts the tube has a radius of curvature equal to that of the tube. The plexiglass prism used for refracting the ultrasonic oscillations into the welded joint has an angle of incidence of 53-55° so that the angle of refraction of the rays in the metal is 74-80°. Rays propagating at this angle are not extremely sensitive to surface irregularities although they show up welding defects quite well. The two types of probes developed are the ITs-2 and ITs-3. The ITs-3 has somewhat poorer ultrasonic directivity but is small in size so that it may be used for inspection when the distance be-

Card 1/2 UDC: 621.791.762.052:620.179.16:621.181.021

ACC NR: AP6035504

tween pipes is 15-20 mm. The ITs-2 is now being produced by the "Elektrotochpribor" Plant. A special method for calibration of the instruments is described. Tests of the ultrasonic welding inspection method show coincidence with data obtained from cutting the welded seams in 85% of the cases. Flaws are rarely missed. The productivity of the method is 70-150 joints per shift depending on inspection conditions. Thus the method is an improvement over x-ray inspection. Studies show that ultrasonic inspection may be used in quality control of thin pipe joints made by high-frequency welding and also for inspecting joints in pipe made from aluminum and other alloys. Orig. art. has: 3 figures, 1 table.

SUB CODE: 13/ SUBM DATE: None

Card 2/2

PIMENOV, V.V., nauchn. sotr.; TAROYEVA, R.F., nauchn. sotr.; KEL'SEYEVA, Z.N., nauchn. sotr.; KONKK, U.S., nauchn. sotr.~~; VYAYSINEN, T.L.,~~ nauchn. sotr.; IL'[illegible], V.I., nauchn. sotr.; CHISTOV, K.V., otv. red.

[Verkhniy Olonets, a settlement of lumbermen ; an experiment in ethnographical description] Verkhnii Olonets - poselok lesorubov; opyt etnograficheskogo opisaniia. Moskva, Nauka, 1964. 194 p. (MIRA 18:1)

1. Akademiya nauk SSSR. Karelo-Finskiy filial, Petrozavodsk. Institut istorii, yazyka i literatury.
2. Petrozavodskiy Institut yazyka, literatury i istorii AN SSSR (for all except Chistov).

VYAZ', A.

USSR/Nuclear physics - Isotopic spin

Card 1/1 Pub. 118 - 2/3

Authors : Vyaz', A. and Smorodinskiy, Ya.

Title : Isotopic spin of light nuclei

Periodical : Usp. fiz. nauk 55/2, 215-264, Feb 1955

Abstract : A theory of the isotopic spin of nuclons (proton or neutron) is presented. The presentation is not given in a strictly mathematical manner, but, rather in a plain descriptive form. This was done to justify the charge invariance hypothesis introduced into nuclear physics for explanation of certain observed phenomena. The theory of isotopic spin [illegible] [illegible] diagrams, graphs.

Institution : ....

Submitted : ....

VYAZACH, YURIY

7666. VYAZACH, YURIY. -- V Doline stremitel'-noy Lyuty (O lespromkhoze I lecopunkte sela Lyuty Zakarpat. obl. Lit. zapis' L. Davydoba). Uzhgorod, Zakarpat. obl. kn. - zhurn. izd., 1954. 54 s. 20 sm. 3.000 ekz. 90 K. -- Na ukr. yaz. -- (55-2232)

or

634.98(47.749)

SO: Knizhnaya Letopsis', Vol. 7, 1955

9.7000

S/044/62/000/005/070/072
C111/C444

AUTHORS: Vyazalov, L. Kh., Morozov, Yu. I.

TITLE: An auxiliary Standard-Program for the Setting-up of a program (SPA-1)

PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1962, 80, abstract 5V475. ("Probl. kibernetiki", no. 6, M., Fizmatgiz, 1961, 59-67)

TEXT: One describes the auxiliary standard program SPA-1 which is successfully used on the computing machine "Strela". The program SPA-1 carries out the following task according to the informations given to it: the introduction of the massives from the reader into the inner memory; 2.) the transmission of the massives from the inner memory on to the punch cards; 3.) the delivery of the control to the command M_{i+1}; 4.) the emission of the control signal into the 36-th memory cell. During the set-up of the program by aid of SPA-1 the programmer decomposes the program which is to be set up into parts. Each knot separating these parts is a transition point from the program which is to be set up to SPA-1. After the choice of the knot one puts up the informa-

B

Card 1/2

An auxiliary Standard-Program ... S/044/62/000/005/070/072
C111/C444

tion about the question which of the four given operations in each knot of the program which has to be set up, are to be carried out. The length of the program SPA-1 contains 136 three-times codes. SPA-1 is set up in relative addresses, therefore it has to be worked at during the introduction into the memory in order to substitute the relative addresses by the real ones; for this purpose there exists a special introduction program for SPA-1. One describes in detail the coding system of the information in SPA-1. The block-diagram of connection of the program SPA-1 is given.

5

[Abstracter's note: Complete translation.]

Card 2/2

1. VYAZANITSYN, V.P.

2. USSR (600)

4. Spectrum, Solar

7. Absolute specrophotometry of the solar chromosphere.
Izv. Glav. astron. obs. 18. no. 6. 1951.

9. _Monthly List of Russian Accessions_, Library of Congress, February 1953, Unclassified.

1. VYAZANITSYN, V. P.

2. USSR (600)

4. Spectrum, Solar

7. Intensities and gradients of chromospheric lines. Izv. Glav. astron. obs. 19 no. 2 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

VYAZANITSYN, V.P.

VYAZANITSYN, V.P. -- "Investigation of Solar Chromosphere".*(Dissertations for Degrees in Science and Engineering defended at USSR Higher Educational Institutions) Acad Sci USSR, Main Astronomical Observatory in Pulkovo", Leningrad, 1955

SO: Knizhnaya Letopis', No. 25, 18 Jun 55

* For the Degree of Doctor of Physicomathematical Sciences

[illegible]

VYAZANITSYN, V.P.

Investigation of the solar chromosphere. Part 2. Izv. GAO 21 no.1:140-155 '57. (MIRA 13:4)

(Sun)

VYAZANITSYN, V.P., prof. (Pulkovo, Leningrad).

"Solar physics" by A.B. Severnyi. Reviewed by V.P. Viazanitsyn.
Priroda 46 no.8:118-119 Ag '57. (MIRA 10:9)
(Sun) (Severnyi, A.B.)

VyAZANITSyN, V. P.

PHASE I BOOK EXPLOITATION SOV/4374

Astronomiya v SSSR za sorok let 1917 - 1957; sbornik statey (Forty Years of Astronomy in the USSR, 1917-1957; Collection of Articles) Moscow, Fizmatgiz, 1960. 723 p. 2,000 copies printed.

Ed.: L. V. Samsonenko; Tech. Ed.: N. A. Tumarkina; Editorial Board: A. A. Mikhaylov (Resp. Ed.), M. S. Zverev, P. G. Kulikovskiy, A. G. Masevich, E. R. Mustel'; V. V. Sobolev, and M. F. Subbotin.

PURPOSE: This book is intended for astronomers, astrophysicists, and others interested in the history of astronomy in the USSR.

COVERAGE: This major work on the history of astronomy in the USSR consists of two parts, review articles and bibliographies. Part I contains a collection of articles on various facets of astronomical research written by leading Soviet specialists in the field. Chief emphasis is placed on developments of the last ten years. The research activities and equipment of 23 Soviet observatories and institutes are described, and the leading scientific personalities of each mentioned. The geographic coordinates and elevations of 41 astronomical centers are listed. Individual articles discuss problems dealing with

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(18)

S/035/60/000/04/07/017
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 4, p. 43, # 3173

AUTHOR: Vyazanitsyn, V. P.

TITLE: Spectrophotometry of the Chromosphere from Observations of the Total Solar Eclipse of 1952

PERIODICAL: V sb.: Polnyye solnechnyye zatmeniya 25 fevr. 1952 i 30 iyunya 1954, Moscow, AN SSSR, 1958, pp. 7-14

TEXT: The results of processing spectrograms of the chromosphere are reported. They were taken at the total solar eclipse of 1952, February 25, by the expedition of the Glavnaya astronomicheskaya observatoriya (Main Astronomical Observatory) AS USSR. A lens camera (D=20 cm, F=635 cm) with an uviol prism (20 x 20 cm, refracting angle is 36°) was used for observations. Standardization and calibration of the photographs were carried out by means of a special collimator with two equal lenses and a slit in the common focus, on which a step reducer was put on; the Sun during partial eclipse phases was served as a comparison basis. Ten spectrograms of the chromosphere and 8 standardization-

Card 1/2

S/035/60/000/04/07/017
A001/A001

Spectrophotometry of the Chromosphere from Observations of the Total Solar Eclipse of 1952

calibration photographs of the Sun were taken. The methods of processing the spectrograms are described, as well as the methods of reduction of the chromospheric lines intensities to the center of the solar disk and of full intensities of chromospheric lines to the absolute scale. All the measured intensities were reduced to the mean zero-point of the logarithm of intensities for both contacts. The results show the existence of a considerable systematic difference for all altitude ranges, i. e., a difference in the zero-points of absolute intensities of the eclipse of 1952 and the eclipses of 1941 and 1945 which were also observed by the author. A comparison of the results obtained with the data of foreign authors is made. Gradients of chromospheric line intensities are determined and compared with the gradients of the eclipses of 1941 and 1945 and those of foreign authors. The comparison shows that the mean difference between emission gradients of the chromosphere in different years does not exceed 0.1; however, the gradients of a given spectral line at different positional angles may exceed this value.

V. F. Yesipov

Card 2/2

[illegible]

Ch. VIII. Solar service -- 164
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[illegible]

VYAZANITSYN, V.P. [deceased]; GNEVYSHEV, M.N.; DOBROVOL'SKIY, O.V.; KRAT, V.A.; MARKOV, A.V.; MOLCHANOV, A.P.; SOBOLEV, V.M.; SHARONOV, V.V.; DEYCH, A.N., red.; MEL'NIKOV, O.A., red.; KULIKOV, G.S., red.

[Course of astrophysics and stellar astronomy] Kurs astrofiziki i zvezdnoi astronomii. Moskva, Izd-vo "Nauka." Vol.3. 1964. 375 p. (MIRA 17:5)

.VYAZANKIN, L.M

3l

PHASE I BOOK EXPLOITATION SOV/5256

Gerasimov, Valentin Vladimirovich, ed., Candidate of Chemical Sciences.

Korroziya reaktornykh materialov; sbornik statey (Corrosion of Nuclear-Reactor Materials; a Collection of Articles) Moscow, Atomizdat, 1960. 284 p. 3,700 copies printed.

Ed.: A.I. Zavodchikova; Tech. Ed.: Ye.I. Mazel'.

PURPOSE: This collection of articles is intended for mechanical and metallurgical engineers as well as for scientific research workers concerned with the construction of nuclear reactors.

COVERAGE: The water corrosion of various types of stainless steel and alloys under high pressures and temperatures is investigated from the point of view of the use of these materials for the construction of nuclear reactors. Attention is given to the following: the use of oxygen for protecting steel against corrosion, the behavior of steel in high-temperature

Card ~~1/8~~

water with various compositions, factors of metal stress corrosion, intergranular corrosion, the mechanism of corrosion cracking, and the corrosion resistance of aluminum and zirconium alloys. Conclusions based on test results are included. No personalities are mentioned. Most of the articles are accompanied by references. Of 238 references 97 are Soviet.

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VYAZANKIN, N.S.; GLADYSHEV, Ye.N.; KORNEVA, S.P.; RAZUVAYEV, G.A.

Disproportionation of hexaethyldigermane. Zhur. ob. khim. 34 no. 5:1645-1647 My '64. (MIRA 17:7)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni Lobachevskogo.

VYAZANKIN, N. S.

USSR/Chemistry - Organic Mercury
Compounds

Jul 51

"Interaction of Certain Organic Mercury Compounds With Succinimide," G. A. Razuvayev, Yu. A. Ol'dekop, N. S. Vyazankin

"Zhur Obshch Khim" Vol XXI, No 7, pp 1283-1287

Dephenyl, o-didolyl, diethyl, & dinaphthyl, and B-dinaphthyl Hg all reacted with succinimide to form $RHgN(COCH_2)_2$ compds (prepd for 1st time), which are well-crystd colorless substances, sol in H_2O, interact with HCl and KI to form corresponding RHg x Hal compds. With H_2S phenyl- and O-totylmercurysuccinimide form diphenyl- and O-ditolyl-Hg, resp, while d-naphthyl- and ethylmercurysuccinimide form sulfides $(RHg)_2S$. Dibenzyl Hg with succinimide yields dibenzyl and Hg.

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VYAZANKIN, N. S.

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[illegible]

Chem Abs
v.48 25 Jan 54

Organic Chem

N-Phenylmercurisuccinimide. G. A. Razuvaev and N. S. Vyazankin. *Akad. Nauk S.S.S.R., Inst. Org. Khim., Sintezy Org.-Soedinenii, Sbornik* 2, 136-7(1952).—Heating 3.6 g. Ph_2Hg and 2 g. succinimide to 135–40°, with continuous distn. of C_6H_6 yields a residue of 90.4% PhHgR (R = succinimido), m. 192-3° (from H_2O). Similarly are obtained: *Et analog*, 87%, m. 121°; *o-tolyl analog*, 84%, m. 178°; *1-naphthyl analog*, 63%, m. 183°; *2-naphthyl analog*, 57%, m. 220-2°; *N-phenylmercuriacetamide*, 93%, m. 167-8°; *p-tolyl analog*, 35%, m. 243-4°; *1-naphthyl analog*, 25%, m. 199-203°; and *N-phenylmercuridiacetamide*, 36%, m. 152-3°.
G. M. Kosolapoff

VYAZANKIN, N.S.

USSR/Chemistry - Organic Mercury Compounds Apr 52

"The Reaction of Mercury-Organic Compounds With Fatty Acid Amines," G. A. Razuvayev, N. S. Vyazankin

"Zhurn Obshch Khim" Vol XXII, No 4, pp 640-643

The reaction of acetamide and diacetamide with mercury-organic compds was investigated. Diaryl mercury derivs react with acetamide and diacetamide, splitting off one radical in the form of a hydrocarbon and forming arylmercuriacetamide or arylmercuridiacetamide. Diethyl mercury did not react with acetamide or diacetamide upon heating.

224T42

VYAZANKIN, N. S.

4

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Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

The reactions of organomercury compounds with amides of fatty acids. G. A. Razuvacy and N. S. Vyazankin. *J. Gen. Chem. U.S.S.R.* 22, 701-3(1952)(Engl. translation).—See *C.A.* 47, 2680c. H. L. H.

VYAZANKIN, N.S.

~~[illegible]ICH,~~ G.

5(4)

PHASE I BOOK EXPLOITATION SOV/2216

Soveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Pro-
Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor,
fessor, S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor,
Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, F.D.
Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor;
and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov;
Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

COVERAGE: The book contains 127 of the 138 reports presented at
the Fourth Conference on Electrochemistry sponsored by the Depart-
ment of Chemical Sciences and the Institute of Physical Chemistry,
Academy of Sciences, USSR. The collection pertains to different
branches of electrochemical kinetics, double layer theories and
galvanic processes in metal electrodepositon and industrial elect-
rolysis. Abridged discussions are given at the end of each divi-
sion. The majority of reports not included here have been
published in periodical literature. No personalities are mentioned.
References are given at the end of most of the articles.

Usachev, D.M., and A.T. Bagramyan (Institute of Physical Chemistry, Academy of Sciences, USSR). Mechanism of the Electrolytic Reduction of Chromic Acid 197

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